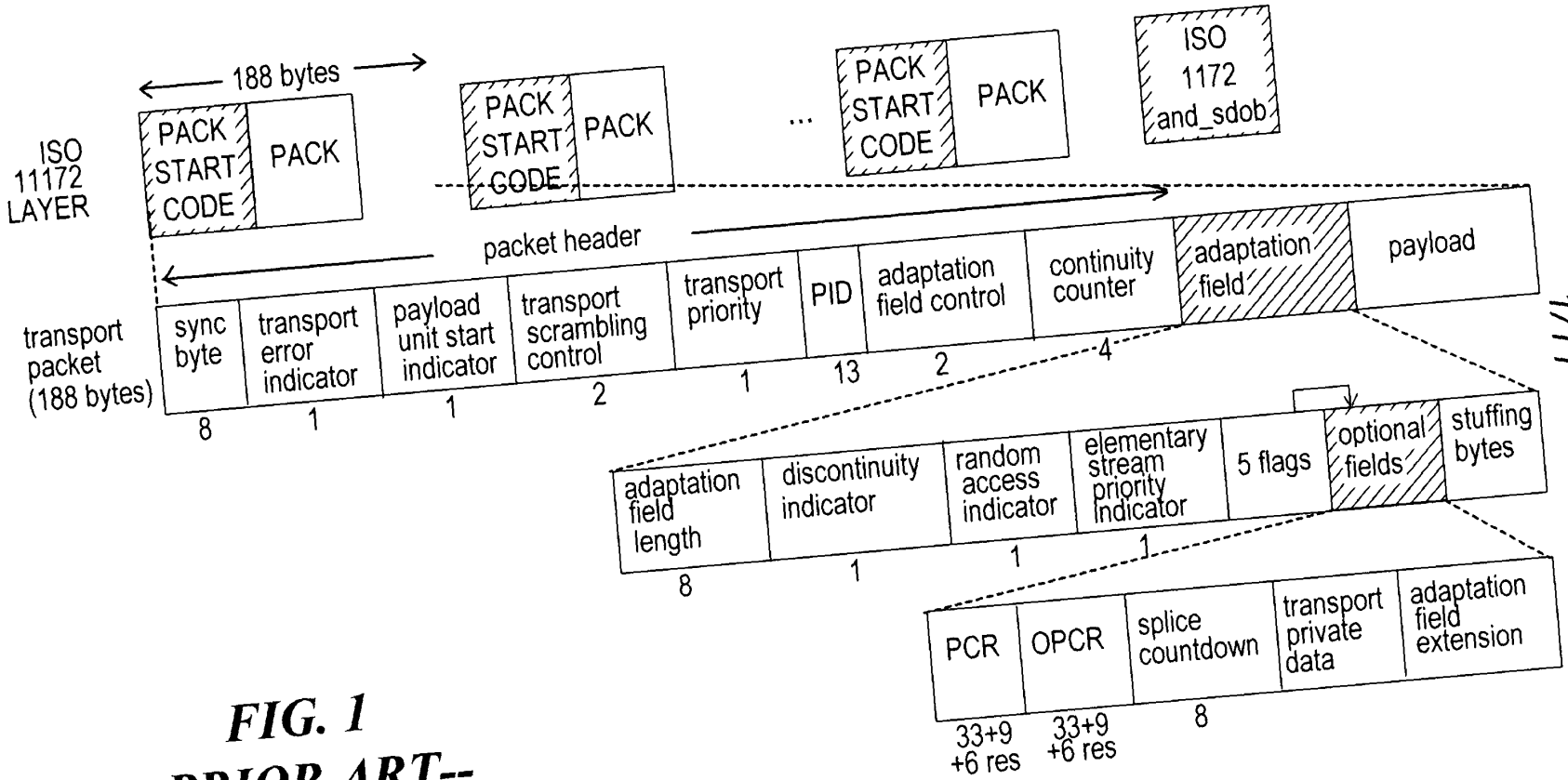

FIG. 1
--PRIOR ART--

ATTY DKT NO.: 1376-0200220
INVENTOR: Brank Kovacevic
ATTY: J. Gustav Larson (512) 327-5515

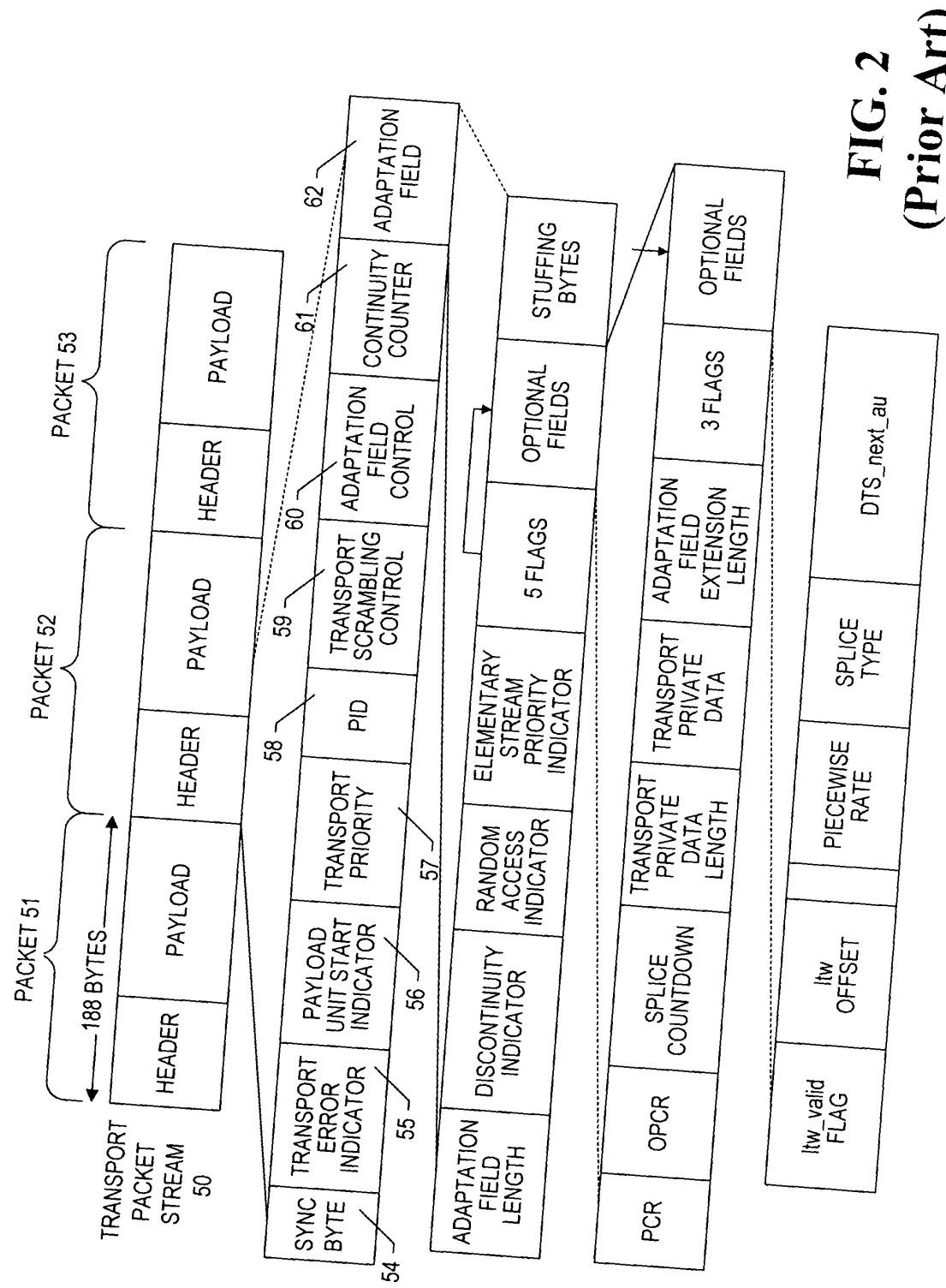

FIG. 2 (Prior Art)

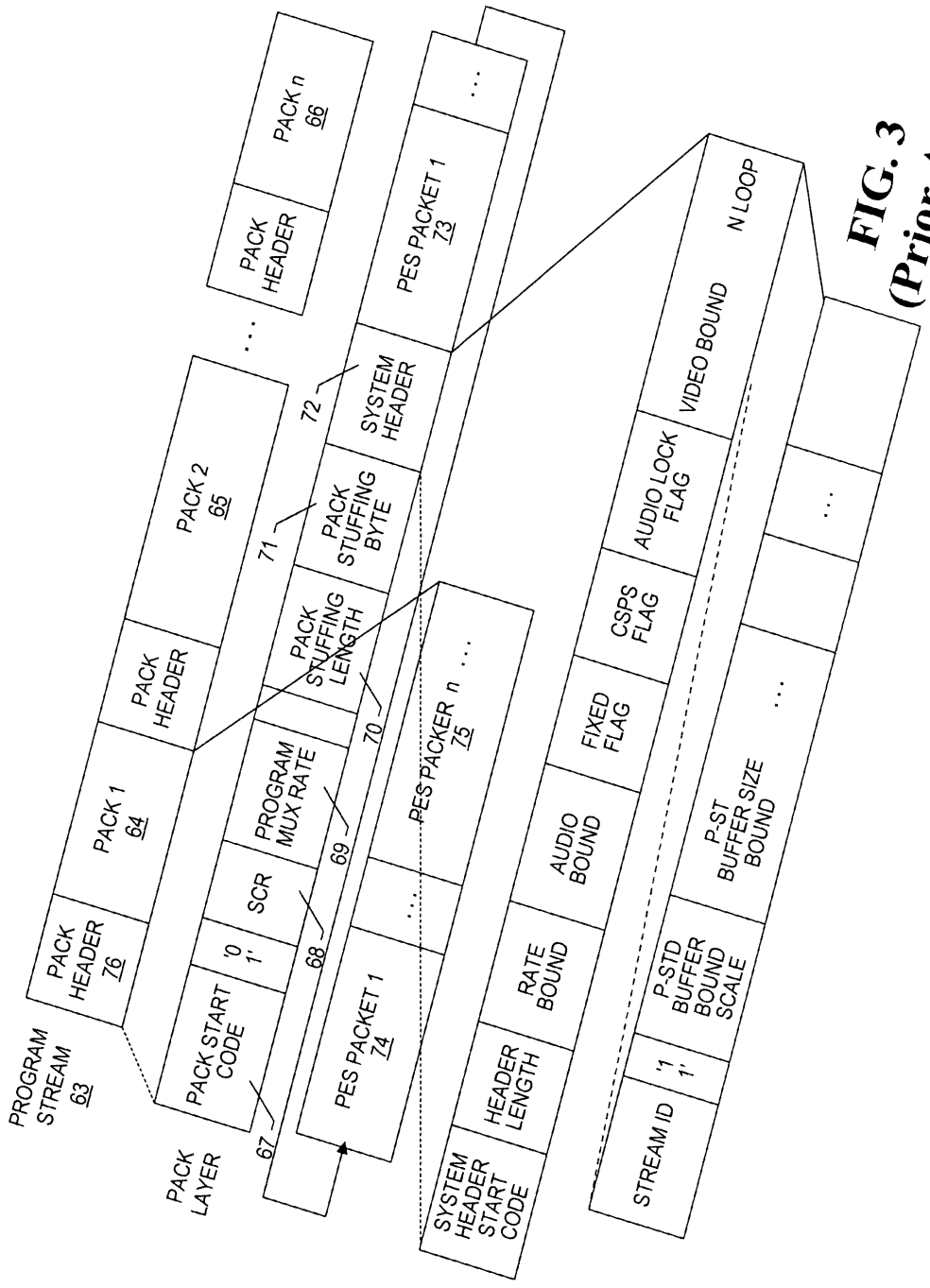

FIG. 3
(Prior Art)

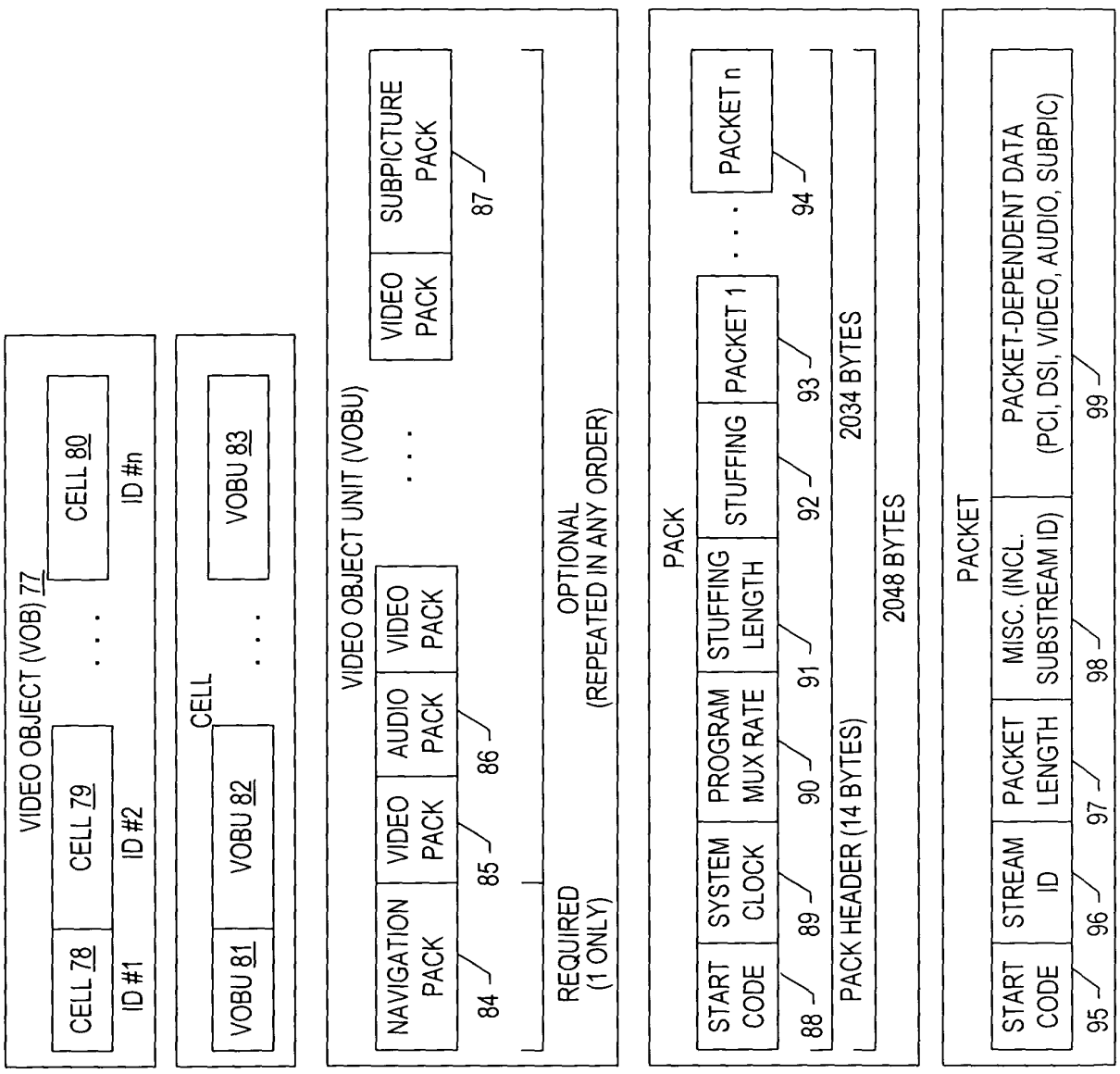

FIG. 4
(Prior Art)

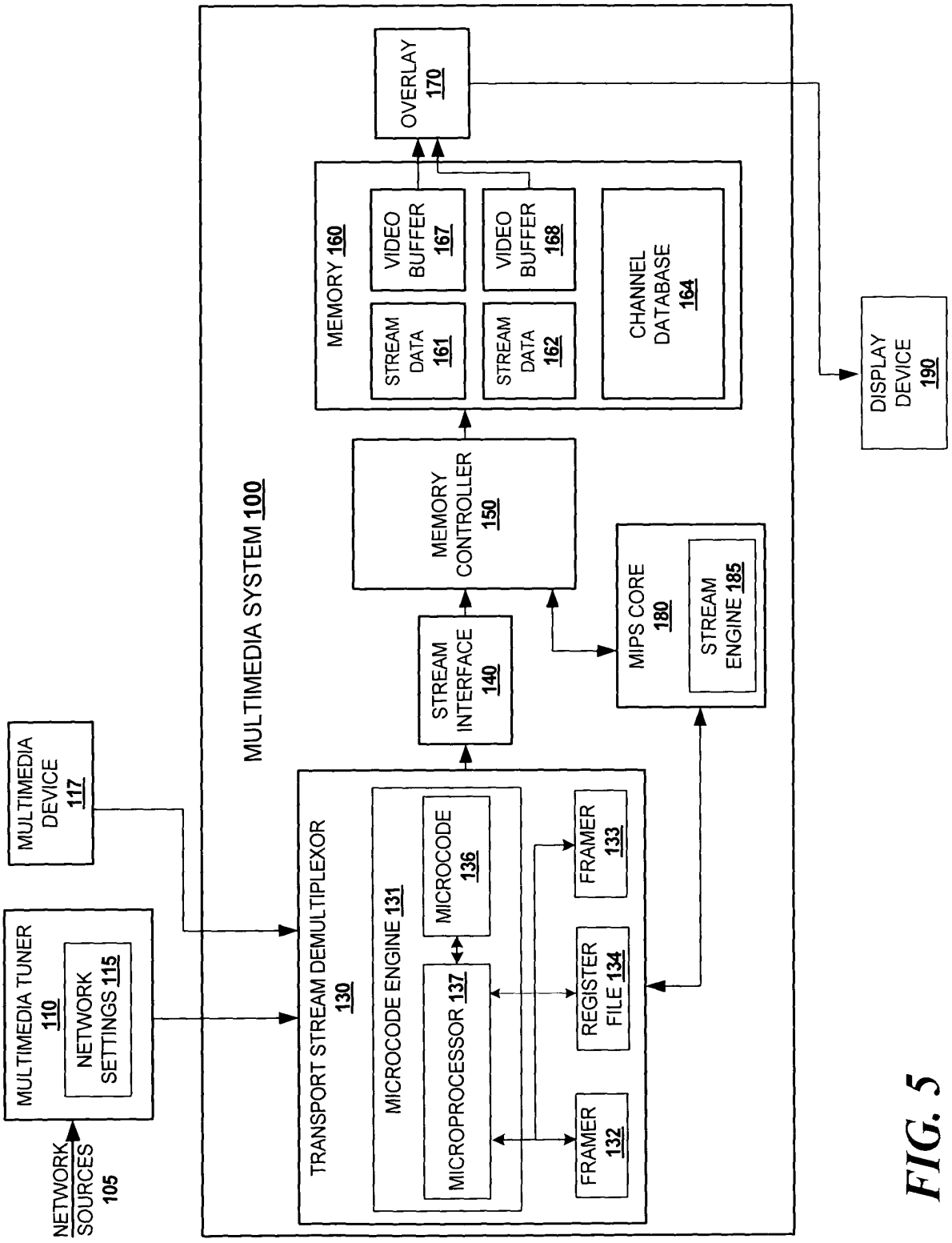
NETWORK SOURCES 105
MULTIMEDIA TUNER 110
NETWORK SETTINGS 115
MULTIMEDIA DEVICE 117
MULTIMEDIA SYSTEM 100
TRANSPORT STREAM DEMULTIPLEXOR 130
MICROCODE ENGINE 131
MICROPROCESSOR 137
MICROCODE 136
FRAMER 132
FRAMER 133
REGISTER FILE 134
STREAM INTERFACE 140
MEMORY CONTROLLER 150
MIPS CORE 180
STREAM ENGINE 185
MEMORY 160
STREAM DATA 161
STREAM DATA 162
VIDEO BUFFER 167
VIDEO BUFFER 168
CHANNEL DATABASE 164
OVERLAY 170
DISPLAY DEVICE 190

FIG. 5

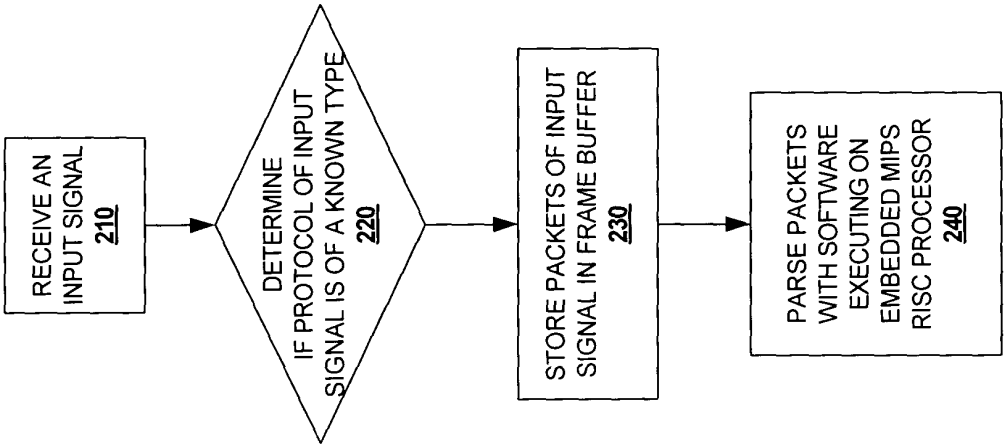
RECEIVE AN INPUT SIGNAL 210
DETERMINE IF PROTOCOL OF INPUT SIGNAL IS OF A KNOWN TYPE 220
STORE PACKETS OF INPUT SIGNAL IN FRAME BUFFER 230
PARSE PACKETS WITH SOFTWARE EXECUTING ON EMBEDDED MIPS RISC PROCESSOR 240

FIG. 6

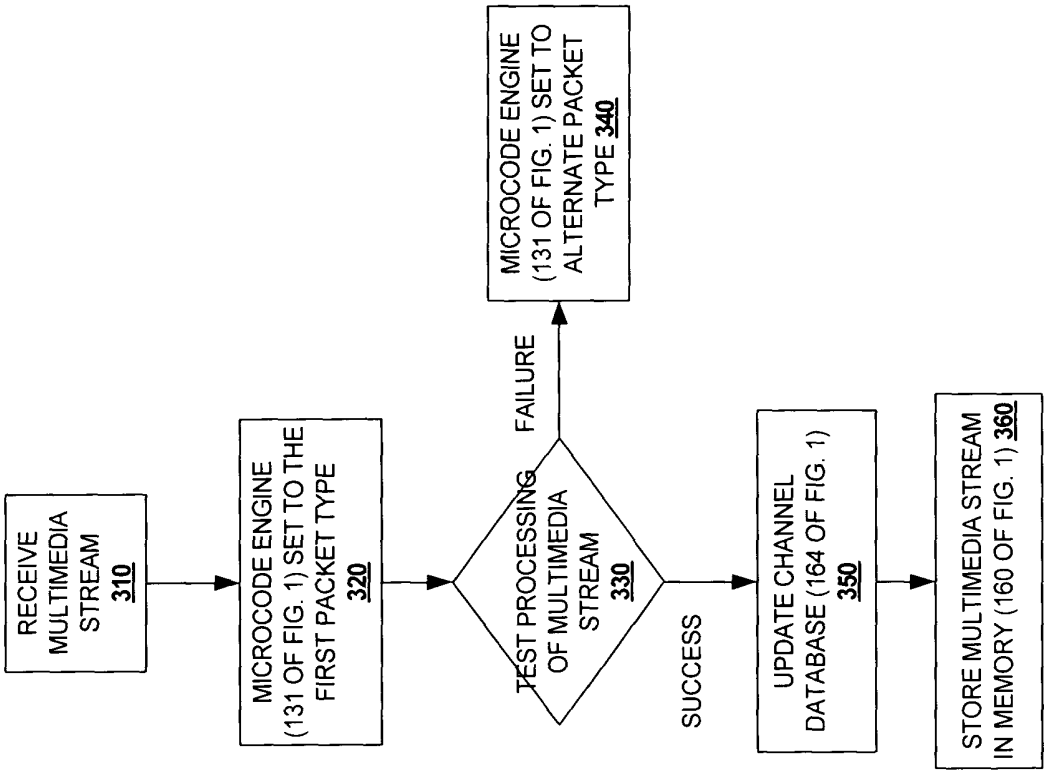
RECEIVE MULTIMEDIA STREAM 310
MICROCODE ENGINE (131 OF FIG. 1) SET TO THE FIRST PACKET TYPE 320
TEST PROCESSING OF MULTIMEDIA STREAM 330
FAILURE
MICROCODE ENGINE (131 OF FIG. 1) SET TO ALTERNATE PACKET TYPE 340
SUCCESS
UPDATE CHANNEL DATABASE (164 OF FIG. 1) 350
STORE MULTIMEDIA STREAM IN MEMORY (160 OF FIG. 1) 360

FIG. 7

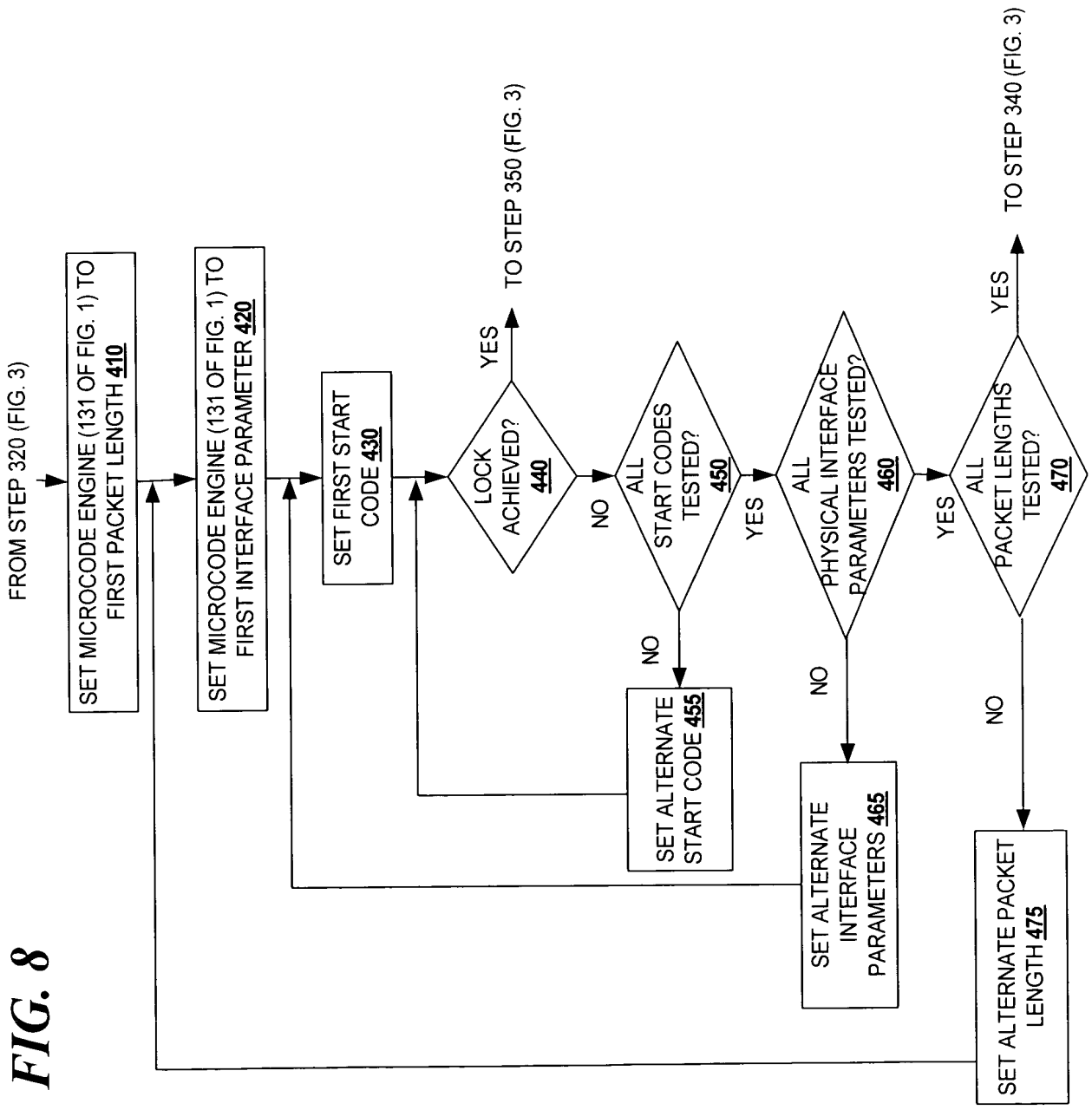
FROM STEP 320 (FIG. 3)
SET MICROCODE ENGINE (131 OF FIG. 1) TO FIRST PACKET LENGTH 410
SET MICROCODE ENGINE (131 OF FIG. 1) TO FIRST INTERFACE PARAMETER 420
SET FIRST START CODE 430
LOCK ACHIEVED? 440
YES
TO STEP 350 (FIG. 3)
NO
ALL START CODES TESTED? 450
NO
SET ALTERNATE START CODE 455
YES
ALL PHYSICAL INTERFACE PARAMETERS TESTED? 460
NO
SET ALTERNATE INTERFACE PARAMETERS 465
YES
ALL PACKET LENGTHS TESTED? 470
NO
SET ALTERNATE PACKET LENGTH 475
YES
TO STEP 340 (FIG. 3)

FIG. 8

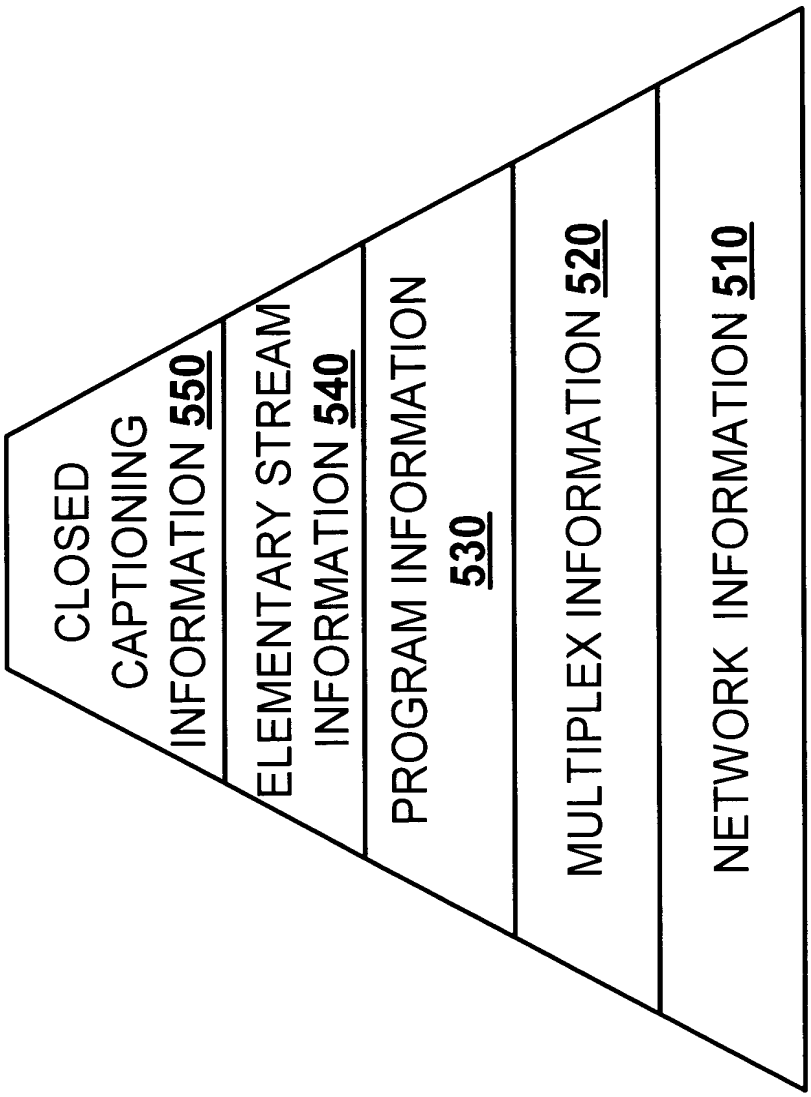
CLOSED CAPTIONING INFORMATION 550
ELEMENTARY STREAM INFORMATION 540
PROGRAM INFORMATION 530
MULTIPLEX INFORMATION 520
NETWORK INFORMATION 510

FIG. 9

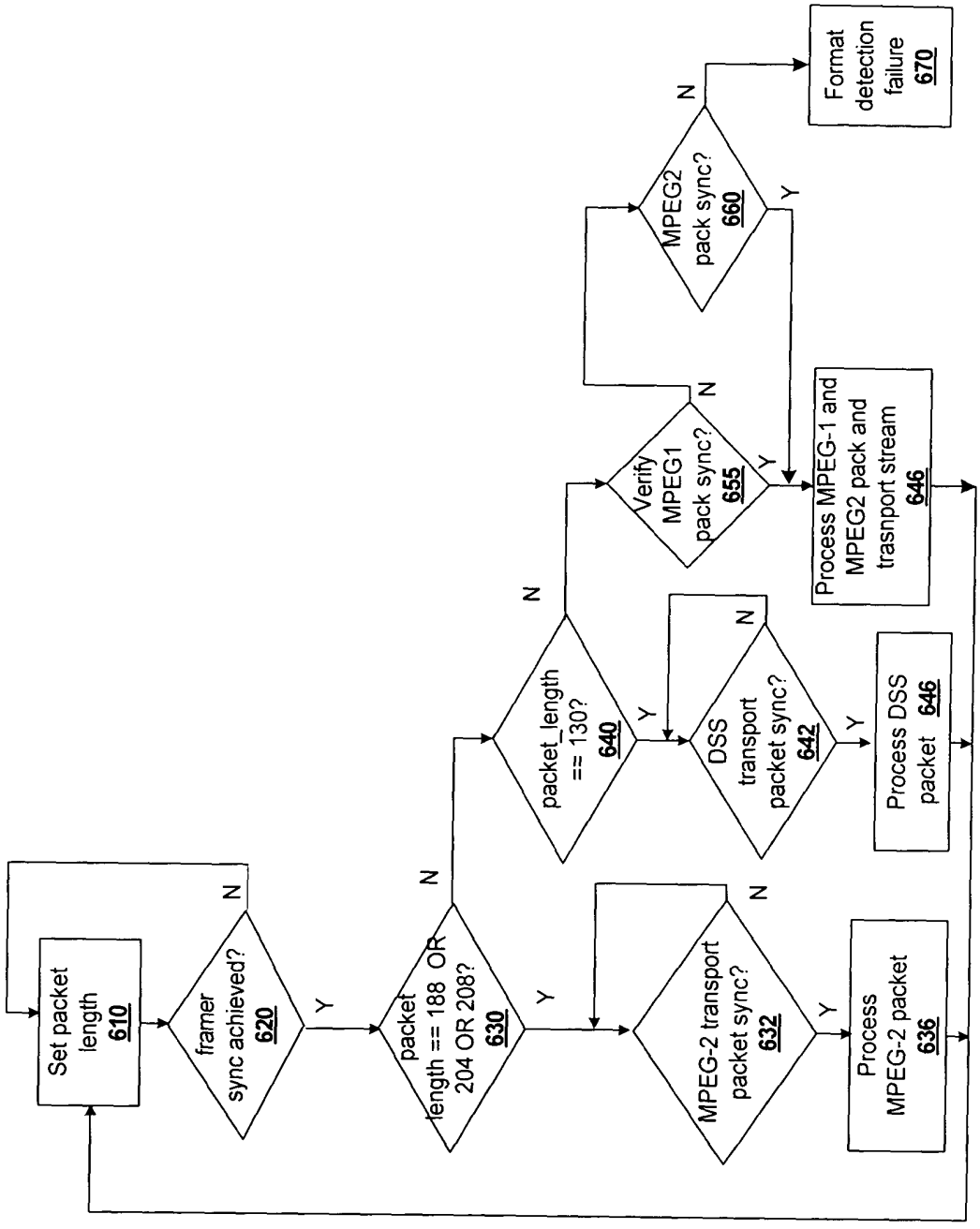
Set packet length 610
framer sync achieved? 620
N
Y
packet length == 188 OR 204 OR 208? 630
N
Y
MPEG-2 transport packet sync? 632
N
Y
Process MPEG-2 packet 636
packet_length == 130? 640
N
Y
DSS transport packet sync? 642
N
Y
Process DSS packet 646
Verify MPEG1 pack sync? 655
N
Y
MPEG2 pack sync? 660
N
Y
Format detection failure 670
Process MPEG-1 and MPEG2 pack and trasnport stream 646

FIG. 10

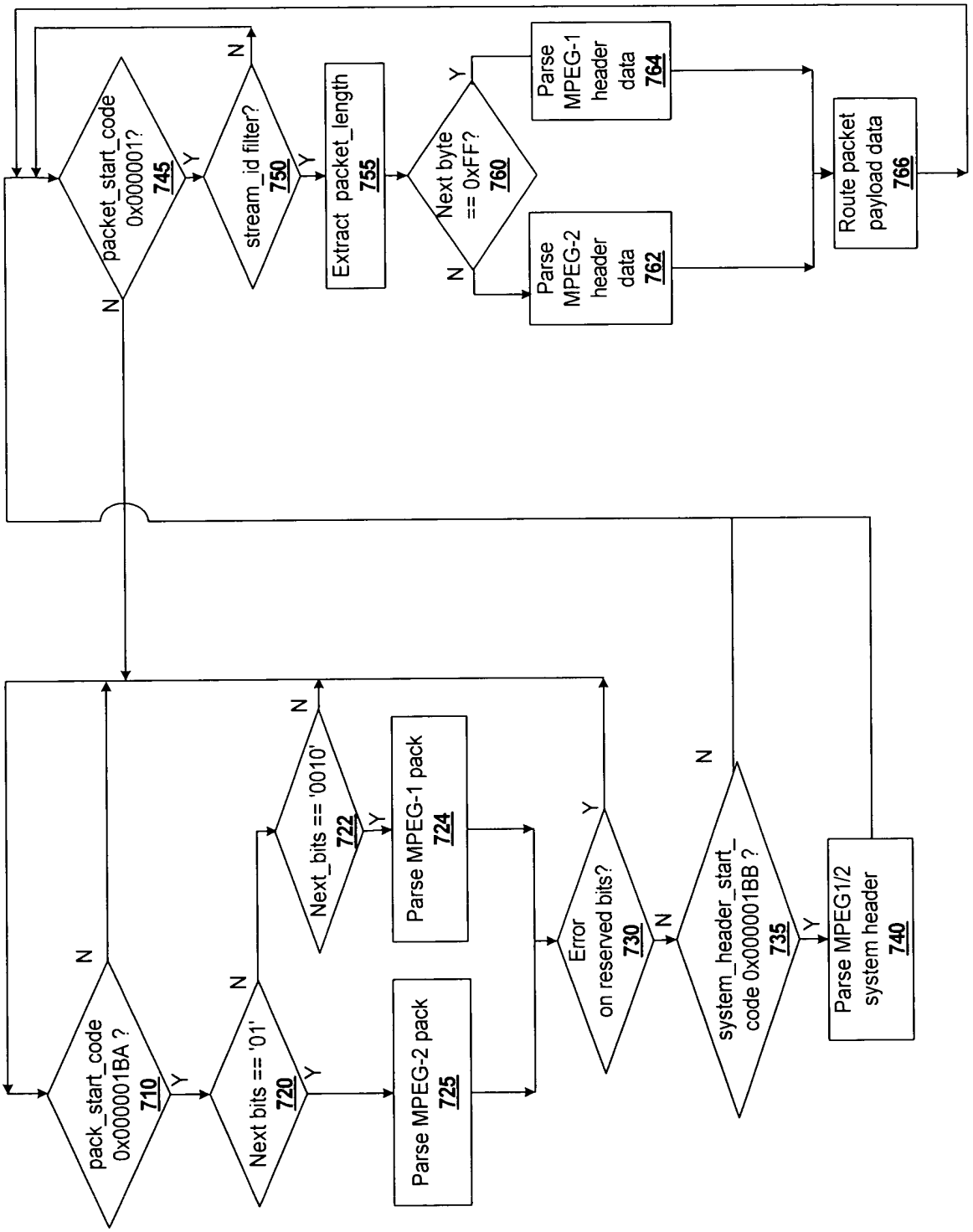
pack_start_code 0x000001BA ? 710
Next bits == '01' 720
Next_bits == '0010' 722
Parse MPEG-1 pack 724
Parse MPEG-2 pack 725
Error on reserved bits? 730
system_header_start_code 0x000001BB ? 735
Parse MPEG1/2 system header 740
packet_start_code 0x000001? 745
stream_id filter? 750
Extract packet_length 755
Next byte == 0xFF? 760
Parse MPEG-2 header data 762
Parse MPEG-1 header data 764
Route packet payload data 766
Y
N

FIG. 11